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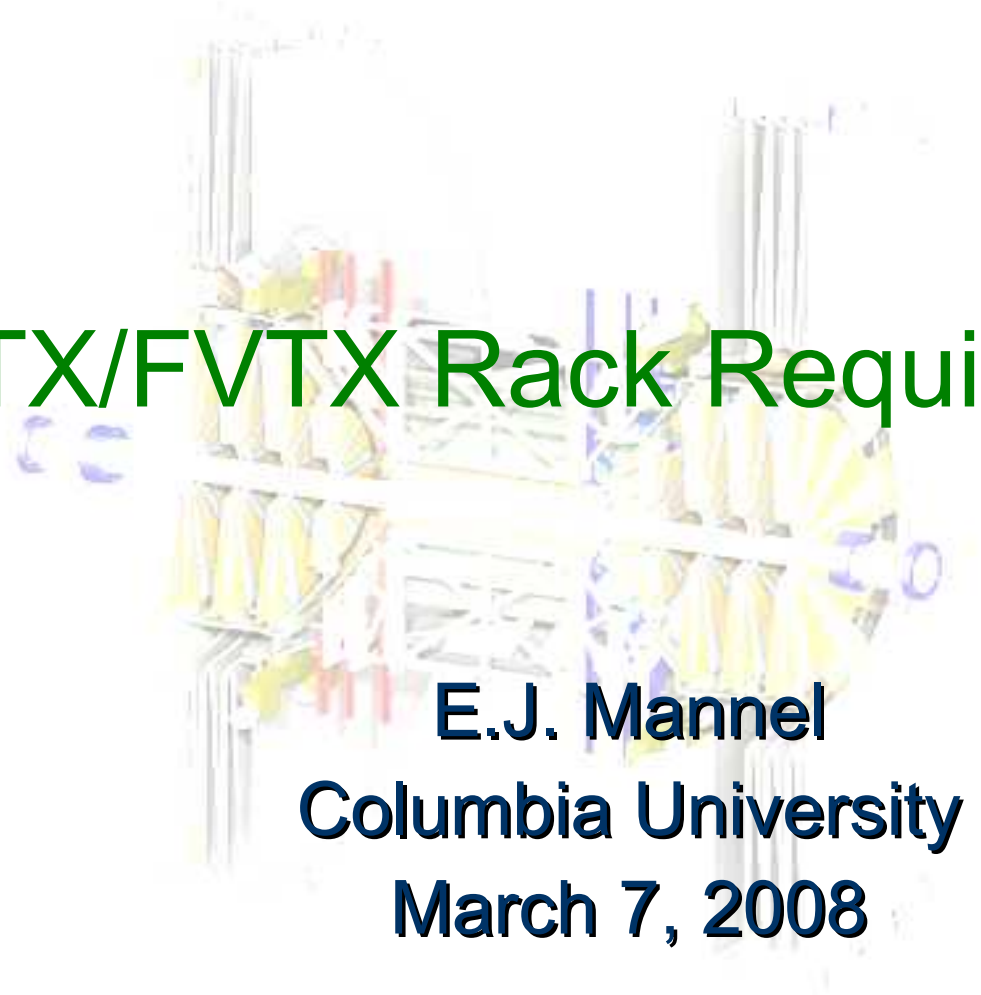
PHENIX



VTX/FVTX Rack Requirements

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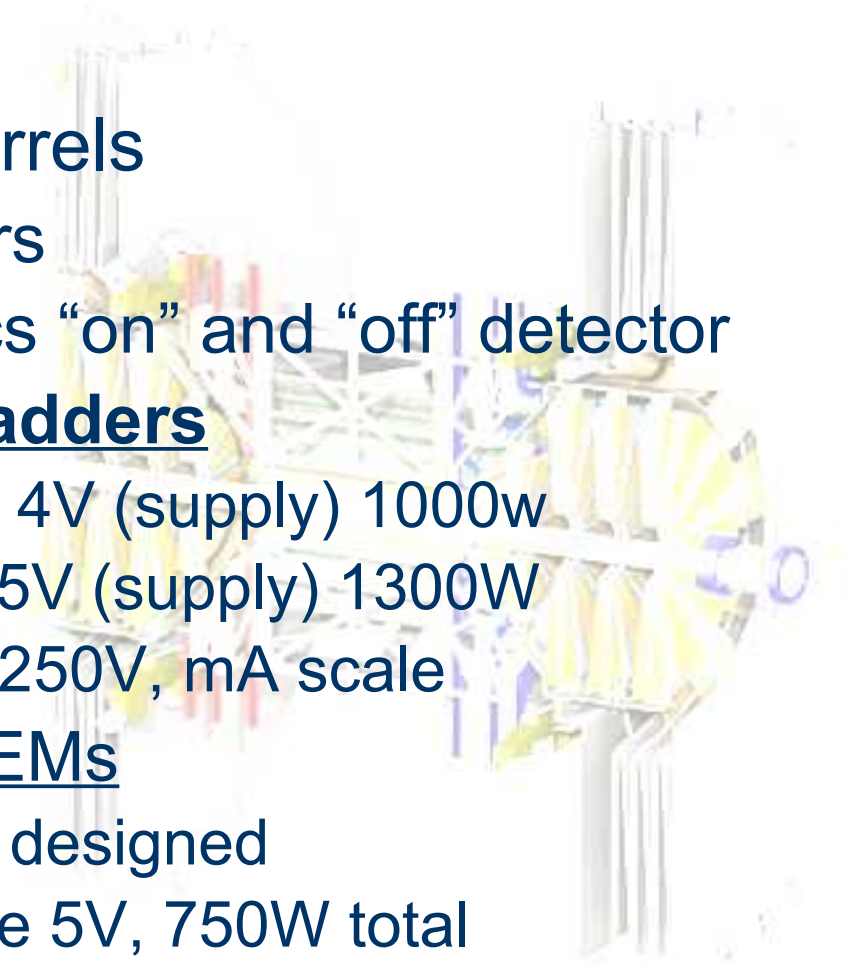
VTX Overview

- 2 Subsystems:
  - Pixel (inner 2 barrels)
  - StriPixel (outer 2 barrels)
- Pixel Barrels
  - 30 Ladders or 60 ½ ladders
  - All IR electronics “on” detector
  - Power:
    - SPIRO: 5V (supply) 1200W
    - Pixel 1/2-Ladder: 4V (supply) 1000W
    - < 50V silicon bias voltage, mA scale
  - FEM located in Rack Room
    - 300 fibers from IR to Rack Room

VTX Overview



- StriPixel Barrels
  - 44 Ladders
  - Electronics “on” and “off” detector
  - Power- **Ladders**
    - Analog: 4V (supply) 1000w
    - Digital: 5V (supply) 1300W
    - Bias: < 250V, mA scale
  - Power- FEMs
    - Still not designed
    - Estimate 5V, 750W total
  - ~55 Fibers from IR to Rack Room

Bias Supply

- Currently Evaluating system from Wiener/ISEG
  - 16 Channels per module
  - 10 modules per crate
  - Crate is 8Us
  - Share crate between Pixel and StriPixel systems

VTX Low Voltage

- Design Guidelines
  - Isolated power and return on a ½ ladder basis
  - Common return (SPIRO/Pixel Bus) for each ½ ladder
  - High reliability
- Current Options
  - PHENIX Standard LVLP System
  - New design by Steve Boose based on MuTr power system
- Expect 1-2 Crates required.
- Discussion of options next week at quarterly meeting

VTX StriPixel FEMs

- Design is still conceptual until functionality of ROC-3 is known
- Current plan is for:
  - 4 Crates
  - 4 Controllers
    - GTM Fiber
    - Slow control fiber/cable
  - 44 FEMs
    - One fiber per FEM
    - One LVDS Signal cable per FEM
  - 6U form factor
  - Space for cooling and power

VTX Rack Requirements

- 3-4 Racks in IR (depending on power supply choices)
  - 1.5-2 Racks for Stipixel FEMS
  - 1-1.5 Racks for power supplies
  - Aux Crate for monitoring infrastructure?
- Fiber patch panel
  - 300 fibers from Pixel system
  - 50 fibers for Stripixel System
- 1 Rack (Partial?) in Rack Room
  - 2 Pixel FEM Crates
  - VME 6U crate

FVTX Overview

- All Electronics “on” detector or in rack room
- Only power supplies will require rack space in IR
- 4 Disks in each end cap
  - 48 Wedges per disk
  - 384 Wedges total
- 12 ROCs per endcap
  - 16 wedges per ROC
  - Located in big wheel of VTX/FVTX enclosure
- 2 FEMS per ROC
  - Total of 48 FEMS
  - Located in Rack Room

FVTX Power

- Planning on using same Bias Supply system
  - Bias Voltage 100-200 V
  - 384 silicon sensors
  - Group several silicon sensors on single bias voltage
  - Separate crate from VTX
- Low Voltage Requirements (Estimate)
  - Wedges: 4V supply, 500W
  - ROCs: 5V supply, 1250-1500W

FVTX Rack Requirements

- 1-2 Racks in IR
  - 1 Bias Supply Crate
  - 1-2 Power supply crates depending on segmentation and channel power requirements
  - Aux Crate for monitoring infrastructure
- Fiber Patch panel
  - 288 fibers
  - Run from Big Wheel to Rack Room
- 1-2 Racks in Rack Room
  - 4 FEM Crates
  - 6 U crate size